

**ABSTRACT**

A memory system and method of using same are provided. One embodiment of the system includes a semiconductor memory that is configured to include a multiplicity of memory segments. The memory segments are grouped into groups. Each of the groups includes N respective memory segments, where N is an integer number. In each respective group of memory segments, the N respective memory segments include respective data segments and a respective parity segment. Also in each respective group of memory segments, the respective parity segment in the respective group stores a respective data value P that may be calculated by a logical exclusive-or of respective data values stored in the respective data segments in the respective group.